Forest Insect & Disease Management

Detection Report
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YELLOWHEADED SPRUCE SAWFLY DETECTION IN WHITE SPRUCE PLANTATIONS, CHIPPEWA NATIONAL FOREST, 1979

by

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INTRODUCTION

Several surveillance reports from foresters on the Chippewa National Forest indicated a potential outbreak of yellowheaded spruce sawfly (Pikonema alaskensis (Rohwer)) in white spruce (Picea glauca (Moench) Voss) plantations. The forest was surveyed in June 1979 to determine incidence and relative intensity of sawfly damage. Sawfly populations usually build slowly in white spruce plantations when the trees are 3 to 15 ft tall, and persist until tree crowns close and overwintering sites in the ground become unsatisfactory as the result of shading.

OBJECTIVE

The objective of this detection survey was to determine the incidence and relative intensity of yellowheaded spruce sawfly damage to white spruce plantations on the Chippewa National Forest.

METHOD

All white spruce plantations over 5 acres that originated between 1960 and 1975 were sampled. The 90 plantations ranged in area from 5 to 150 acres with an average of 27 acres. Fifty of the plantations were visited to make sample counts of trees that had been defoliated by sawfly.

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At each plantation, two crew members would enter at a convenient spot and then begin examining spruce trees. No counts were made until the crew detected sawfly damage. When the first sign of sawfly attack was seen, the crew began to count and examine trees in a row until 100 trees had been examined. The number of spruce trees attacked by sawfly was recorded. The crew then proceeded an arbitrary distance, examined another row of 100 trees, and recorded the number of trees attacked. A third group of 100 trees was examined to complete the work in a plantation. The distance between groups or rows of trees varied according to plantation size and shape, and the line traversed was usually "U" shaped.

RESULTS

Eighty-eight percent of the plantations (44 of 50) was infested with yellowheaded spruce sawfly. Four of the plantations not attacked were overtopped by hardwoods, were on swampy sites, and had poor survival of spruce. The other two plantations not attacked by sawfly were also free of any other insect and disease problems. They were stands 91-10 and 92-13, Walker Ranger District. Nearly half of the plantations had very low damage levels (Table 1).

Table 1.--Number of plantations attacked by yellowheaded spruce sawfly by percentage of trees attacked, Chippewa National Forest, 1979

Percentage of trees attacked	Number of plantations by ranger districts a/					Total Chippewa National Forest
	CL	W	DR	BD	M	
0	0	4	1	0	1	6
1-10	1	5	3	5	1	15
11-20	2	2	2	3	1	10
21-30	0	0	0	1	0	1
31-40	0	1	0	2	0	3
41-50	1	0	1	0	1	3
51-60	2	0	0	0	3	5
61-70	0	1	0	2	1	4
71-80	0	0	0	0	1	1
81-90	1	0	0	0	0	1
91-100	1	0	0	0	0	1
Total	8	13	7	13	9	50

a/ CL=Cass Lake, W=Walker, DR=Deer River, BD=Black Duck, M=Marcell.

RECOMMENDATIONS

It is recommended that Forest Insect and Disease Management:

1. Make a biological evaluation on the three plantations where sawfly damage is extensive. These plantations are:

   Cass lake 5-4, 23 acres
   Cass lake 135-1, 6 acres
   Marcell 136-109, 62 acres

2. Revisit nine plantations and determine tree condition in late 1979. These plantations are:

   Cass lake, 56-16, 42 acres
   Cass Lake, 56-2, 24 acres
   Walker, 37-4, 16 acres
   Black Duck, 71-16, 13 acres
   Black Duck, 17-21, 100 acres
   Marcell, 113-6, 34 acres
   Marcell, 32-6 and 32-3, 28 and 16 acres
   Marcell, 90-1, 19 acres
   Marcell, 151-2, 16 acres